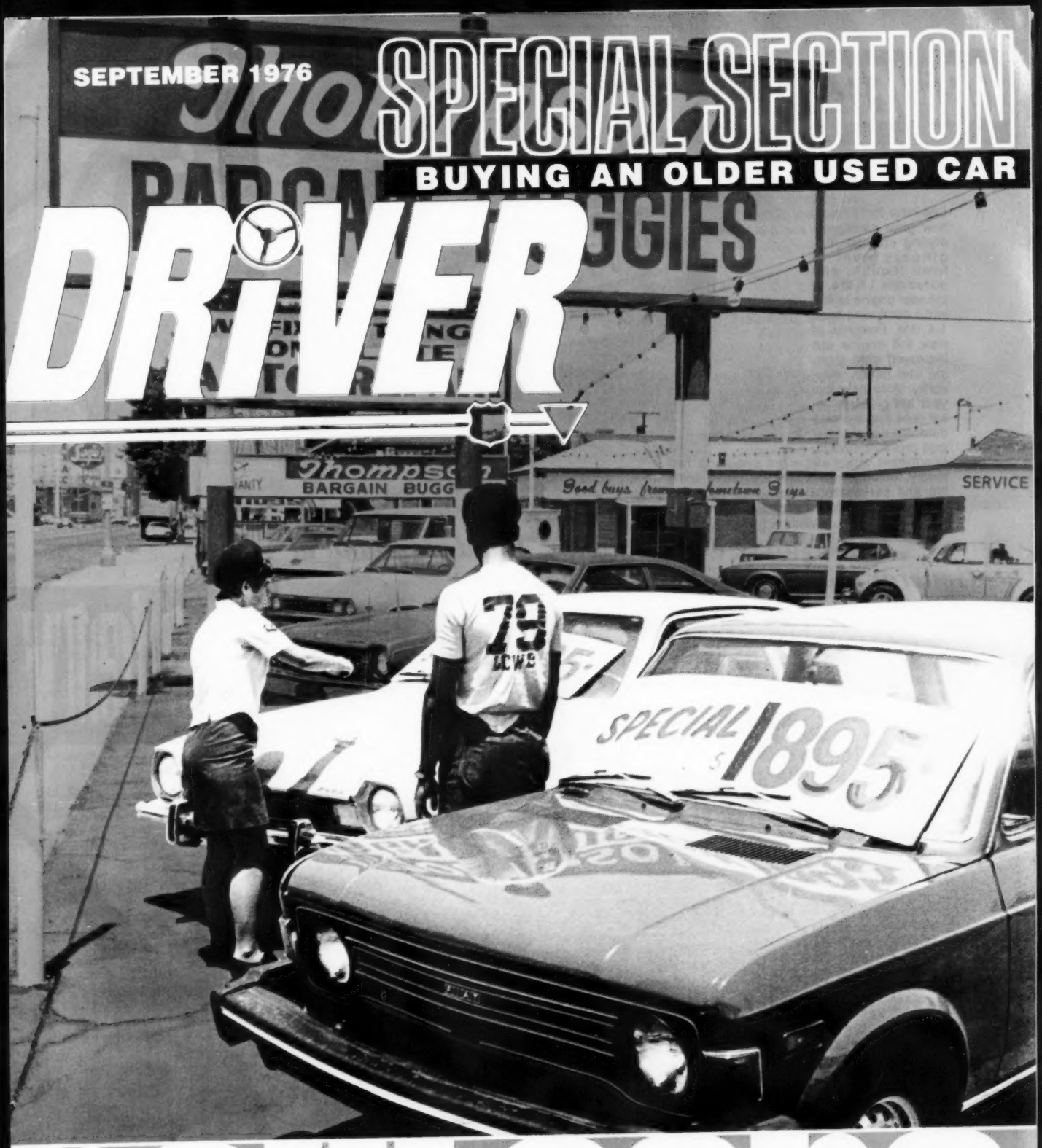
SEPTEMBER 1976

SPECIAL SECTION

BUYING AN OLDER USED CAR

DRIVER



new cars

SAFETY and the 77s

DRIVER

Chevette for '77 gets new grille as biggest styling change. Engineers went to town though, and added new 1.6 litre, 4-cylinder engine to line while continuing base 1.4 litre. Features of new 1.6 engine are improved cold starting and better driveability. Also new this year are pressure relief caps that increase durability due to better cold pressure cycling, intermittent windshield wiper system (a real safety feature), and increased brake lining life and performance caused by using organic-metallic linings and pads.

DRIVER has been looking at the new cars with safety on our minds. What we found at General Motors was lighter weight, larger brakes, improved suspensions, bigger tires–safety considerations that are important to the intelligent car buyer.

safety

Biggest news for '77 is "smaller." New "full-size" (internally) cars from GM, including this Chevrolet Impala, are down almost a foot in length and 800 pounds in weight. Improved handling on full-size cars is due to new, lighter chassis, and computer-design techniques. New cars have as much, or more, interior and trunk room while dropping unneeded exterior metal. "Crashworthiness" is said to be better; bigger brakes and lighter weight combine to make cars safer.

Ever-popular Corvette remains much as in '76, with new wheels and blacked-out windshield pillars adding to '77 identification. Always a handling champ, 4-wheel disc brakes make it a stopping champ, too.

Chevrolet Nomad Van rides high on popularity crest, adding new features like passenger windows, roof window-vents, and partially-finished paneled interiors for do-it-yourselfers. Handling has improved with use of radial-tuned suspension and larger tires.

Full-size wagons are down in exterior dimensions, too. All-new body style is more utilitarian, and wagons now feature lockable compartments in the rear. Rear seat fold-down controls are much improved over past years, with only one hand and 3 seconds needed to convert from a 6-passenger car to station wagon. This particular Chevrolet Caprice Estate wagon continues to use wood-grain side treatment . . . you might like it better without the fake wood. Gone also is the "clam-shell" tailgate, dropped in favor of 3-way "door-gate."

and the 7s

Lighter and quicker handling are adjectives that have not applied to most large American-made cars recently, but things are changing for the '77 model year.

For the coming year, for instance, General Motors has reduced the external size of its "full-size" line of cars, reduced the weight, and added suspension and chassis changes to make its "new full-size" cars (and many of the intermediate and small cars) safer and more economical to operate.

While retaining or increasing most interior and trunk dimensions, GM has chopped up to a foot of length from the big cars and deleted up to 800 pounds from their weight.

These reductions mean that new engines and transmissions that are smaller and more fuel-efficient can be used. Another benefit is that lighter weight and larger brakes make for a better-handling car that can turn sharp enough and stop fast enough to keep you from hitting that turkey who runs the stop sign.

Don't let our phrase "new full-size" fool you though. It's just a matter of terminology, because rear-seat passengers will tell you that although the new cars are smaller on the outside, they have more leg and hip room than their predecessors.

What you see on these pages are General Motors products because that's what we were invited to see first. We'll have run-downs on other makes as information becomes available to us.

continued

Big cars are getting smaller, and that means more fuel-efficient engines and transmissions.

DRIVER

THE TRAFFIC SAFETY MAGAZINE FOR THE MILITARY DRIVER

SEPTEMBER 1976

VOLUME 10 NUMBER 4

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Certain individuals shown in this magazine are not members of the Air Force and therefore do not conform to Air Force grooming standards.

THE EDITOR SPEAKS

DOUBLE CLUTCH

EMERGENCY VEHICLE TRAINING

In January DRIVER published a story about some special training March AFB Hospital had arranged for its Emergency Medical Technicians who drive ambulances. The training was conducted by the Riverside (Calif.) Driver Awareness School, and it was quite a sight to see an Air Force ambulance running a chicane at the famous Riverside Raceway, which is just a few miles from March AFB. Capt Cathy Tryon, training officer, had arranged for the instruction in anticipation of a California ordinance requiring that drivers of emergency vehicles have additional training.

In the article we made brief mention of the need for military drivers to comply with the tri-service publication for emergency vehicles. That remark brought us a lot of letters and phone calls asking exactly *what* tri-service regulation we were talking about. In an attempt to clarify the matter for everybody, we printed one such letter in our July "Backfire" column and then gave some information that we now find was both premature and somewhat inaccurate.

The Department of Defense does intend every branch of service to provide extra training for operators of all specialized equipment—and this includes ambulances, fire trucks, and other emergency vehicles. The Air Force requirement for this training will be found in AF Manual 77-310, Volume 1, which is now at the printer and should have been released by the time you are reading this. Every base must have a qualified individual, on record as a certified trainer, who will instruct all new people on the specialized equipment they will operate.

We will pass along specific details concerning Army and Navy regulations as soon as published.

NEXT MONTH
Hiking and Camping

Buick Skyhawk is not changed from '76 except for a new grille and minor trim changes. A see-through roof is now available on the Skyhawk S package, along with a 231 cubic inch V-6 and 5-speed transmission.

New cars are just dream stuff to a lot of us. If your budget is geared to a safe, dependable, cheap used car, be sure to read the Special Section on page 4.

Buick Century Special Colonnade Coupe has an optional 231 cubic inch V-6 engine that can make it a mileage champ. With the optional suspension package, the car is a smooth handler that'll whisk you around those mountain roads. Lighter weight and new suspension improves safety too, by making accident avoidance easier.

Oldsmobile Cutlass Coupe outsold competitors in late '76, will probably continue trend in '77. Pleasing styling combines with lighter weight, better handling and stopping.

buying an OLDER

The less money you have to spend the more important it is to shop carefully, with safety and dependability at the top of your list of requirements. What can you do on a $750 to $1,000 budget?

It's a known fact that life isn't all work and no play, but it's a cinch that if you don't have a car you'll probably never be fully able to take advantage of your playtime. The subject of buying a car probably touches a few tender nerves, considering the prices of new models these days, but there are many dependable and roadworthy used cars that can be had for bargain basement prices.

Rather than cover the entire spectrum of used cars – from $99 junker deluxes to $20,000 Porsche Carreras – here are some tested step-by-step hints at how to get the best of buying a used car with a budget of $750 to $1,000.

MAKING UP YOUR MIND

First of all, decide for yourself how much money you have available and wish to spend, and stick to that amount. If the budget will allow $825, don't start looking at cars that are $850. Sales taxes, license and registration fees are going to be thrown in later at the Department of Motor Vehicles, so plan on spending from $75 to $100 less on the car itself than you have available.

Decide what you want the car for. Maybe it's just getting to and from base and most points in-between; maybe it's for status, or maybe your bag is drag: a souped-up, 'rarin' to go relic of the '60s.

If the car is to be used purely for transportation, you'll want something that offers good economy, reliability, and a minimum of maintenance. Such a car would probably be an intermediate or, better yet, a compact with a small engine. There are both imports and domestics that fill the bill here, but bear in mind that parts availability and labor charges tend to favor the U.S. makes. Also, depending on the number of people you want to carry, a four-door might be a wise move.

Next, think what kind of equipment you want. Rolled down windows might more than satisfy the craving for an air conditioner – or a convertible could really do the job. Power steering is great for parallel parking, but how will you keep your arm muscles in shape? Power disc brakes will give you the sense of power when it comes to stopping – almost at will.

Even if you never had a physics class, you probably don't have to be told that stopping a 4,000-pound car traveling at even modest speed takes a lot of "grab." Brakes are the number one must on a new or used car, so if you have a choice, go for the best available: four wheel discs.

A second choice would be front discs and rear drum brakes, and that's what you're most apt to find. Drum brakes all-around are usually O.K., but have a tendency to fade when the going

continued

(near right, far right)
Be sure to bargain for the best possible deal . . .

. . . but try not to get too carried away when one is agreed upon.

by
DENNIS J. HALLADAY

used car

gets tough, or when you need them most. They are also easily affected by water – disc brakes are almost immune.

Heavy-duty suspensions are made for most any car. Consisting of front anti-sway bars, stiff springs and firm shocks, the H-D package offers greater stability by reducing side-wind effects, increases high-speed maneuverability and cornering, and can add an extra year or two to a car's life by reducing road vibrations.

If special lighting is available, either fog lamps or driving lights, the increase in visibility at night can make the difference between a pleasant outing and an accident. If they are not a part of your used beauty before purchase, you may want to add them later. If you do so, it would be wise to add a heavy-duty battery, alternator or generator.

Engines run the size gamut from insectly two-bangers to elephant-like, super-deluxe V-8s. Lastly, a stick shift may break up the front seat and make a date somewhat less than perfect, but remember: AAMCO serviced millions of automatic transmissions last year.

With the above criteria firmly implanted in your mind, *select* (that's right, you should decide on what to buy before even going out to look) one, two, or possibly three makes, models and years.

If your legs and/or thumb can hold out, spend at least a week scouring the last few pages of the local paper under "Autos, Used." Check just those models and makes that you have under consideration, noting the equipment offered, the mileage and general description, and the price. Also, make a mental note of whether it's being offered for sale by a private party or a dealer. After a few days of this, you should find that your particular makes and models are selling for a fairly constant amount.

Besides checking the local paper, give a look in your base paper and check the bulletin boards around base and at the local shopping centers. If there's a college in your area, the bulletin boards there are often packed with used-car bargains.

If you have found what might be a prospect at a dealer or lot, find out what time they close, and go out and look *after* hours. Besides not having anybody see what you're interested in, you'll be able to look as thoroughly and as leisurely as you care to. If you check one from bumper to bumper and find it passes inspection, you can go back the next day and take it for a test drive.

If you haven't owned a car recently, you may be shocked at the increase in insurance rates. Also, rates are apt to be even higher for military people, because they are generally regarded as transients, never quite sure where and for how long they will be, and are often *misconceived* as being somewhat less than responsible!

The best bet with insurance is to call around to several companies and get rate quotes for the make, model, year and other information regarding the car you are thinking of getting. This way you won't dig yourself into a liability hole you can't see out of when it comes time to buy coverage.

Once you've decided on what it is you want, don't settle for a vehicle that's *almost* it. You may have to make some concessions when it comes to equipment, but you should go out and get the car *you want*, not the one somebody wants to sell you.

In any used car dealing, it is a good idea not to set foot outside your pad unless you are ready to deal. This is because (contrary to what others might tell you) you may find just the car you want at the very first place you look. You wouldn't want to get caught without a deposit and have the car get away, so be as ready as you can before you go out shopping, especially with your finances.

Age and condition, of course, are the biggest things that determine how much a used car will cost. But also high up on the list is its popularity. One of the sad facts of life is that a '65 Mustang is a whole heck of a lot more popular than a '65 Falcon with the same everything. Used car prices will reflect this.

If you ever have to come up against this type of decision, popular vs. cheaper, it's generally better to spend the extra bucks for the more popular model. The reason is that someday you'll want to resell the car, and it will be much easier to find buyers for the popular model than it will for an even-better-condition white elephant. Auto parts stores and junk yards are also more likely to have parts for the popular make.

On the question of doors, if you don't mind four of them as opposed to just two, it will be much cheaper than the two-door version of the same car. But keep in mind that you may want to sell the car some day.

FOREIGN SUGGESTIONS

After your first few days with the classifieds, at least two facts will become apparent: 1) there are LOTS of cars for sale, and 2) there are some entire makes that you won't be able to afford, simply because the cheapest running Porsche in the world has got to cost at least $2,000. Get the picture?

Now for some good news: there are several foreign cars and a handful of sports cars that will fall into the $750 to $1,000 bracket. There are undoubtedly models available in one condition or another from every foreign manufacturer, but the following should prove to be the most frequent and reasonably priced. (These are West Coast figures – geography influences prices.)

A quick check of the used car ads should turn up a couple of Datsun models, especially the 510, that are in your price range. The '68s and '69s are the best bet here, and there may be a stray '65 or '66 1600 roadster available.

In Fiats, it should be no trouble to find a clean and good running '67 to '70 850 Spyder – the little two-seater convertibles.

If you're a real mileage freak and you don't mind tiny places, a two-cylinder Honda may be just the thing. A '70 should go for about $900 and a '71 for a few dollars more.

Toyota offers a number of small, relatively inexpensive models. Virtually

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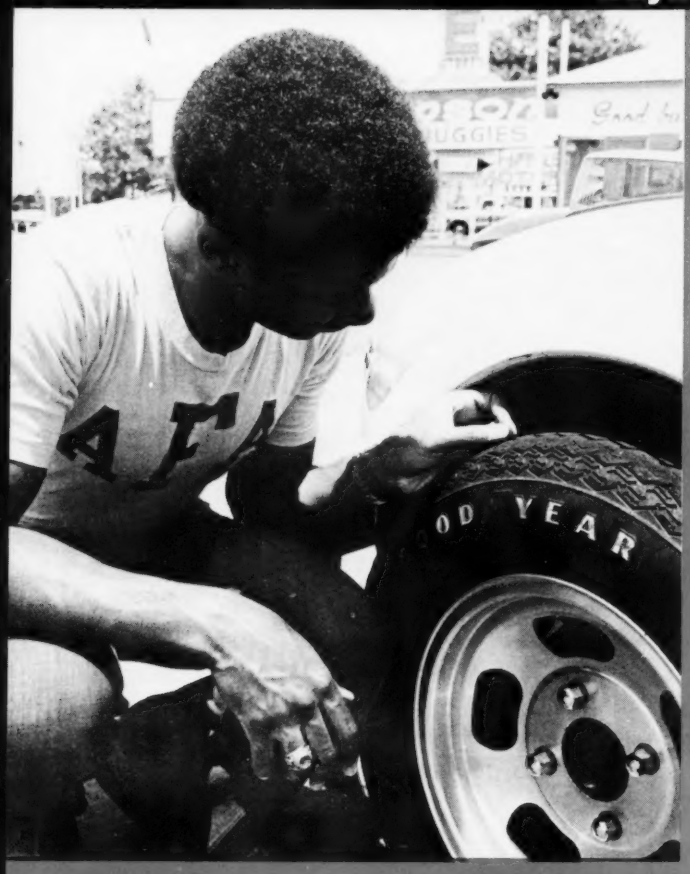
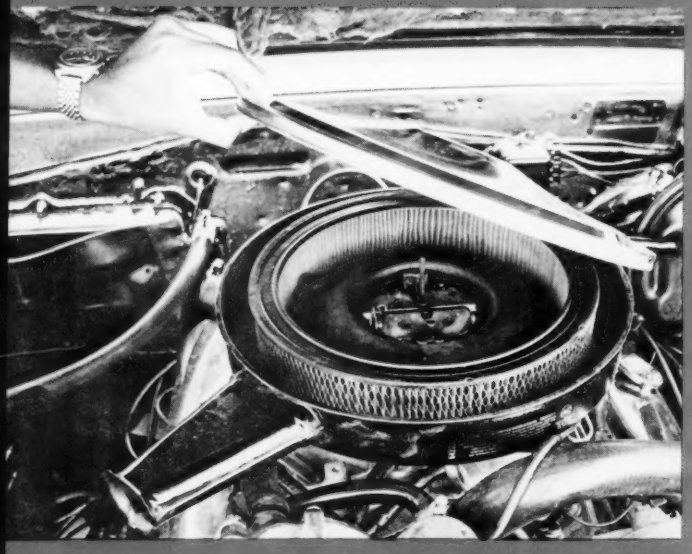


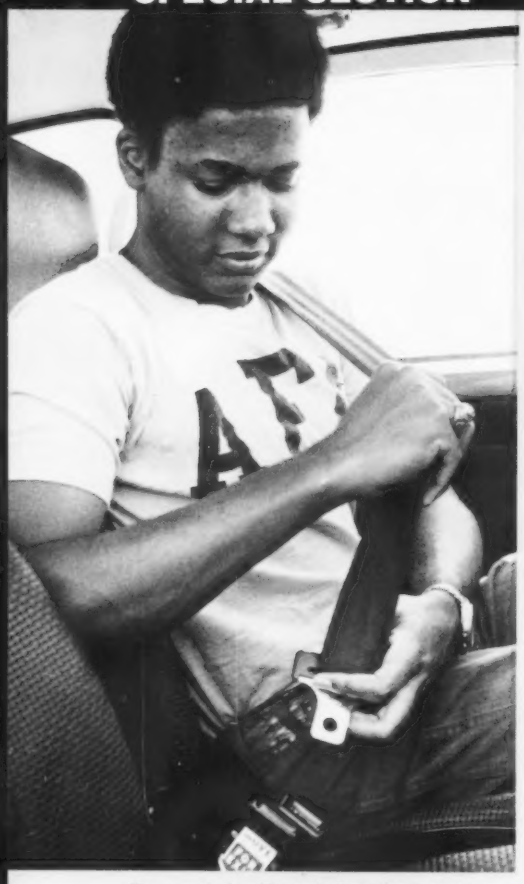
(left)
Tires are one of the first things Cadet 3C Steve Alston checks when shopping for a used car.

Disconnected or broken hoses are one thing that an engine compartment inspection may turn up.



When you check under the hood, be sure to lift the air cleaner cover and see what kind of shape the carburetor is in, too.

(right)
A belt that is too loose can either come off or break.



Be sure to buckle up before the test drive.

Check that the connections of wires are firm and clean. (But don't touch any bare spots!)

Wood boards should not be accepted in place of metal bumpers.

Things like torn head liners can be both annoying and costly to repair.

any '67 to '69 Corolla or Corona can be had for under $1,000 – many for much less.

The prime area for looking for inexpensive cars is the Volkswagen line. VWs are famous for their tough, dependable, long lives. They are good on gas and insurance, hold their value better than many makes, are repaired at a million and one places, and there is a large supply of used models available.

Volkswagens also have the added feature that people don't usually run out and sell them when they need a new engine, but will go ahead and put in a new or rebuilt one. As a result, many used VWs have new or nearly new insides.

There are many Bugs, squarebacks and fastbacks waiting to be had for up to $1,000. Most of these will likely be in the '65 to '68 range, though some may be older and few could be as new as 1970.

Another thing to remember about Volkswagens: when it comes time to resell yours, there's practically a waiting market. They sell fast, because their price creates an enormous potential buying market regardless of their performance.

Another foreign car to be considered is the Volvo. Though there aren't too many that will fall into your limited price range, Volvos have earned a solid reputation as being one of the safest cars built, and they do seem to offer dependable long life.

DOMESTIC POSSIBILITIES

On the domestic scene, American cars tend to depreciate in value much quicker than do foreign makes. Hence, it shouldn't be hard to pick up a five, six, or seven-year-old domestic and keep your savings account from being gutted.

Many U.S. cars – unlike those from Europe and Japan – will come with four doors, a V-8 engine, automatic transmission and power steering. All this equipment means more weight, more power and less fuel economy, but replacement parts are much more common and generally less expensive than import parts.

Sports cars made in the U.S. aren't really sports cars (the Corvette is the only one), they're really sports coupes. Some to be considered, if you're leaning in that direction, are the '67 and '68 Camaro, Cougar and Firebird; the pre-1970 Charger and Challenger; and the '66 Barracuda. These can be a little tough to find though, because high school hot rodders tend to snap them up.

The '65 to '69 vintage Mustangs seem to abound on both the streets and in the automotive ads, and can be both good transportation and a good investment. Like the VW, Mustangs are easy to resell, due to their sleek and sporty lines.

Up to now, we have been dealing with two-door models mainly, but some of the cheapest transportation bargains are to be had with American-made four-door sedans and station wagons. Your own manufacturer preference will have to have a good say in what you get here.

If it's luxury you're thinking of – without the luxury price – give a look at the pre-1969 Oldsmobiles, Cadillacs, Lincoln Continentals and Thunderbirds. They all come with V-8s, automatic transmissions, power you-name-it, and roomy interiors. Some of them, if you're lucky, will turn out to be '63s or so that were bought new by genteel widows with chauffers who never drove them more than 200 miles in a month.

Other not-so-classy used beauties to watch for are the '63 to '68 Chevrolet Impala, Nova, Malibu and Chevy II. Dodge has some excellent transportation models in its '65 to '69 Darts, which often came with economical six-cylinder engines.

Most of the inexpensive Fords will turn out to be pre-1969 Galaxys and Fairlanes. The Maverick, Ford's answer to the Vega, is usually affordable if it's a '70. They are generally among the least expensive of all used Ford cars, and most have thrifty six's.

Pontiac has the Tempest and the GTO (here's where you'll find a hot rod), which generally run up to $700 for the '64 to '66 models. Plymouths for less than a thousand include the Fury, Duster, and especially the Valiant, up to the 1970 editions.

A note of reminder at this juncture: A pretty paint job often makes a heap or a lemon look both attractive and appealing, but it doesn't mean it runs any better than an unpainted heap. On the other hand, an unpainted beauty doesn't mean it runs as bad as it looks. Moral? Don't judge a car by its paint job.

WHERE TO SHOP

Where to buy will be a real headwracker when you begin shopping in ernest. The newspaper ads will show that private parties will usually be considerably lower in the asking prices than will new car dealers or used car lots.

The private party will most always have the lowest prices to offer, and for a number of reasons. He wants to sell quickly, he can generally get more for the car by selling it himself than he can get from a dealer, and he doesn't have to go through the expense and hassle of fixing it up.

About the most he will do before putting it on the market will be to wash, wax, and polish it, vacuum and scrub the interior, maybe steam clean the engine, maybe give it a tune-up, and maybe undercoat it, but that's about it. This will often leave openings for you to "pick the car apart" and come up with things to work the price down.

What the private party will not do is give you a warranty or guarantee of any kind, so you have to be extra careful about the quality and value of the car before buying. Be sure to ask to see any repair bills for work he claims was done.

An independent used car dealer may be the way to go if you don't mind paying a little extra for a car that you have to take less chances with. A good-sized lot can afford to buy a number of cars at once, and they employ a relatively small staff, so their overhead is low and sometimes they can afford to sell below the new car dealer.

Independents, as well as dealers, are legally bound as to the condition of the

continued

merchandise they sell. All cars must have safety equipment – such as lights, brakes, turn indicators and horn – in good working order before they can be sold. In addition, they will usually give at least a 14-day warranty, and sometimes as much as 90 days at the dealerships.

Be wary of the small used car dealer. He usually has only enough capital to buy up older cars, and then usually just a few at a time. This type of business is committed to selling at a higher profit level, but at a lower dollar price, and sometimes offers shakey warranties.

The ideal place to buy a used car is at a big new car dealer who has a used car lot for his trade-ins. As you might expect, prices at a dealer will be the highest of all, but so will the quality of his merchandise.

Because they have a professional and community reputation to protect, dealers will take the time and expense to put a used car into top working order before it is ever put on the lot. Dealers also give solid, first-class warranties and will go out of their way to satisfy the customer.

The one drawback with shopping at a large dealer is that they generally have only the low mileage, late model trade-ins – real dollar for dollar bargains, but way out of your price range. Occasionally, though, a dealer will have one or more inexpensive models, and the trouble taken to drop by and have a look is well worth it.

Right here we have to stop for an important must: diagnostics.

Over the last several years, the risk has been all but removed from used car buying with the development of the diagnostic test center. The car buyer, once dependent on his ability to pick out what is right and wrong, can now know exactly what kind of shape a car is in by paying $15 to $25 to have a car diagnostically checked.

The entire performance and safety areas of a car are checked in a short (about 30 minutes) process, and the results are not "maybe's" and "mights," but concrete statements of what is good and what needs fixing. You may wind up paying $20 to have a car checked that you find you shouldn't buy, but it's a sight better than being stuck with the car and an empty bank account.

Buying a used car without first having it checked by a reputable, professional test center is absolute idiocy. In addition, beware of any private party or lot that does not allow you to have a car checked out. It could be that something really big is being hidden.

If the diagnostic test should turn up any minor defects, such as the need for a tune-up, a weak battery, or misalignment, and you're still interested, these things can be used to negotiate a lower price with the seller.

WHEN TO SHOP

Regardless of where you shop, it is to your advantage to shop at the best time of day, month and year.

Hundreds of thousands of used cars are bought in the spring and summer when the weather is nice and the urge to travel is greatest, and supplies of cars are high due to high volumes of new car sales and the resulting trade-ins.

You will get less attention from a salesman at this time than during the rest of the year, and you will really have to scrape for a deal. The salesman knows that if you don't jump for the car he shows you, there is probably somebody in line waiting for the chance.

In the middle of December, when it's snowing and the high for the day is one below zero, the salesmen aren't making their commissions and the new car dealers aren't selling, but it's still costing an arm and half a leg to keep the doors open and the building warm. This is a good time to deal.

The end of the month, regardless of the time of the year, is a better time to buy than at the beginning or in the middle. Both dealers and salesmen are looking for the last few sales that will push them over their quotas, put them in front in the sales race, or qualify them for a bonus.

On a day-to-day basis, the weekends are the worst time to buy, because everybody else who is looking for a car is taking advantage of their day off to shop. You can go ahead and spend your weekend the way it should be spent, and shop on the weekdays when everybody is at work and the salesmen have no one but you to sell to.

If you're looking for the precise hour to shop, the late mornings and middle afternoons are best, say 1100 and 1500. Before and after are bad, because other shoppers either come in to work an hour late, or leave a few hours early to do some quick looking.

THINGS TO LOOK FOR

When you're buying an older car, especially one that's seen 90,000 miles, you have to expect that it's not going to be in cherry condition. It will be very important to give it a thorough going-over and carefully weigh what is wrong and what it will cost to make it right.

With an older car, of course, the biggest thing to make sure of is whether it is safe and reliable. The items to be most concerned with are things like brakes, tires, steering, suspension and performance. Other areas are headlights, front end alignment, plugs and points and carburetor adjustment. Shock absorbers are found to be defective or in need of attention in about half of all cars on the road, too.

The following basic checks, though by no means final or complete, should help make sure you don't get stuck with somebody else's troubles.

BODY

Sight down the sides of the car, looking for ripples and waves that indicate repair; rusting around the rocker panels, and body filler or putty. Also check the front and rear bumper brackets. If they have rust, are welded or are new, it's a good bet the car was in a hard crash. Open and close the hood, trunk and all doors. If any opens too easily, or binds when it opens, it may have been hit.

TIRES AND WHEELS

Take a close look at the amount of tread and evenness of wear on the tires. If a penny, stuck edgeways into the tread, does not cover at least part of

Lincoln's head, the tires are worn out and must be replaced. If the wear on the tread is heavy on one side and light on the other, the front end needs to be aligned.

A few small dents around the wheel's rim are not out of the ordinary, but large ones are a good indication that the car was driven hard and carelessly.

Be sure to check that there is a jack in good working order, and that the spare tire meets the standards of those on the car.

EXHAUST

Look closely at the car's tailpipe. If it is deeply blackened, is gunky, or has any fluids coming out of it, there is probably some internal problem. Too much rust, though, could mean a very old muffler is about due for replacement.

FLUIDS

Begin this check by removing the radiator cap (those of you looking at Volkswagens can skip this) and check the condition of what's inside. If the coolant is especially swillish-looking or rusty, has oil droplets floating inside, or is just plain water, you can bet that something is or will be expensively wrong.

See that the brake master cylinder is full and the fluid is not cloudy or dirty. If it is low, check along the brake lines for signs of leaks.

Pull out the oil dipstick and see if the level is within the indicated proper range. Also feel what's on the stick. If it is gritty or water-thin, it hasn't been changed for a while – maybe too much of a while.

If the car is an automatic, check the transmission fluid dipstick. The fluid should be a clearish sparkling red. If it is orange, has black flecks in it, or smells like varnish, the transmission may be due for an overhaul.

Take a look at the battery's water level. If the cells aren't full to the top, it may have lost some of its power or have a leak. Be sure, also, that the terminals are relatively free of acid and corrosion and the cables are in good condition.

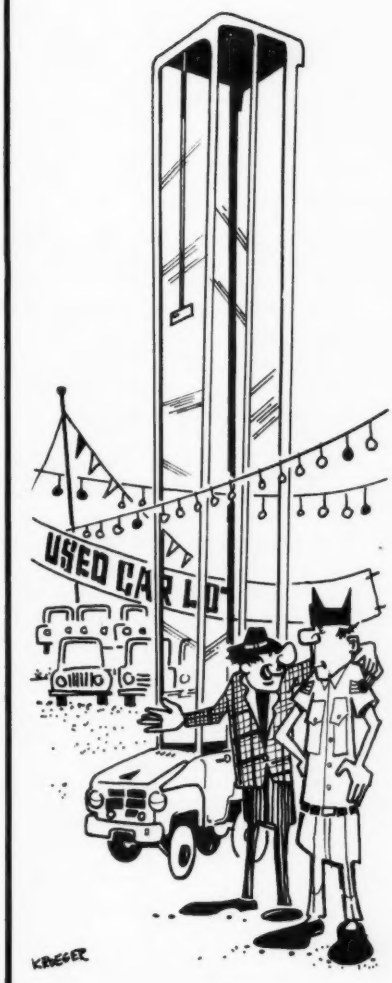
THE TEST DRIVE

Before you take a prospective beauty out for a test drive, take a few seconds

continued

Check shock absorbers by pushing down on car. If car tilts this much, you'll need new shocks. Car should bounce only once when released. Listen for noise from broken spring.

Walk around car and check both rocker panels for rust. Paint may be covering the rust, so look for pits under the paint. Rust indicates car has had it.



"It belonged to a lil ol' trampoline artist from Pasadena who liked to warm up on her way to work."

Broken seat springs indicate a lot of miles no matter what odometer reads.

Door sides can tell many stories. Look for lubrication stickers with mileage notations and compare with odometer. Check for rust, signs of accident damage. Locks should function. Door latches should work smoothly; if they don't, chassis and/or body may be bent. If car has been hit hard, it's on a fast road to the junk yard. Again, look for another car.

to realize that the car is new to you and you won't be used to the way it handles or the location of its functioning devices. It is therefore an excellent idea to spend a few minutes checking where the brake is in relation to the accelerator, what the shift pattern is, where the turn indicators are, how responsive the steering is, adjusting the mirrors and the seat, and for goodness sakes, putting on the seat belts. (If the car does not have seat belts at the time of purchase, they are a must before you do anything else to it afterwards.)

SUSPENSION AND STEERING

First, push down on the front and then the rear of the car. If it bounces right back up in one motion, the shocks are good. If it bobs up and down, however, it's in need.

With the car elevated, check the amount of wear in the ball joints, tie rods and front wheel bearings by making hard jerks at the top of each front wheel. A significant amount of movement means trouble.

After the car is back on all fours, turn the steering wheel both ways with the car standing still (cars with power steering must have the engine running) to check for "play." There should not be more than two or three inches of play before the wheels begin to turn. If there is, then the steering gear is either worn or damaged.

Pick out areas of road where there are many bumps and small holes (railroad tracks are ideal) and make several runs over them. Too much noise, bounce, or violent direction change could indicate major suspension troubles.

On a clear, wide and vacant area being used during the road test, release both hands from the wheel while making a slow turn. If the steering doesn't correct itself automatically, the steering box has probably had it.

During the same road test, remove your hands from the wheel while going in a steady, straight line. If the car wanders more than a few feet of center in either direction, the front end will need work.

TRANSMISSION

On automatics, start from a dead stop and go through the gears first manually and then automatically. Start out slowly and work up to road speeds. In the transition from gear to gear, there should be no hesitation or clunking noises. Beware of free-running pauses between gear engagements, and rapid racheting noises.

You can also check for wear in the universal joints and the rearend by gently rocking the car back and forth between Drive and Reverse. If it feels like it "sloshes" in and out, you'll probably be seeing AAMCO sooner than you think.

In stick shifts, the clutch should have to be released only about 1½ inches from the floor before it engages the throwout bearing and the car starts to move. After you begin rolling, stay in low gear and make quick, short pumps on the gas and then back off. If the gears or U-joints are bad you'll probably be able to hear them.

ENGINE

Before starting, check the engine for signs of oil and water leakage (if it hasn't been cleaned up), frayed belts, loose or cracked hoses, and the amount of general dirtiness.

Next, start the engine and listen to make sure there are no hisses, misses, surges or roughness. Be sure to note the speed and strength of the starter and the time it takes to start the engine, also.

Accelerate at full throttle, going from a slow roll to speed limit maximum. There should be no hesitation, backfiring, popping or missing. The presence of any one of these could be an indication of a need for valve work, carburetor rebuilding, or a general tune-up. Also check the rear-view mirror for signs of smoke from the exhaust that would indicate bad rings or valves.

When you have reached cruising speed and have maintained it for several seconds, lift your foot entirely from the gas pedal and listen for knocking sounds from the engine. Such noises usually mean bad bearings, pistons, or both.

BRAKES

Before going out on the road, apply the brakes firmly for 15 to 30 seconds. There should be no change in the feel and firmness of the pedal. If so, there is either a leak in the fluid line, or the master cylinder is bad.

After you have pulled out onto the highway and have checked that the road behind you is clear, make three or four quick stops from highway speed. The pedal action and brake response should be identical in all tests, and there should be no sponginess present.

Road conditions permitting, make several rapid (not panic) stops with your hands off the wheel. If the car grabs in either direction or drifts more than several feet off center, it may be due for a front end alignment or a brake adjustment.

In paying for the car that finally does manage to pass all inspections, we are assuming that you are planning to pay cash for it. The old phrase "money talks" holds more meaning today than it may have several years ago. In any event, with the nation just out of tight economic times, people are still a bit wary when it comes to any form of credit.

You may have planned on paying for the car with your personal check, but pulling out $700 cash and offering it for a car with a $775 tag on it could net you an extra little wad for later use. The seller can see and feel the C notes in his hand, but how is he to know that your check is good?

Well, the list of things to do and watch for is long, and there's a lot of information to remember, so you may want to make a copy of this article to take along for reference when shopping, or make some notes at least. In any event, try to be patient during your search, and don't get conned with lines like "Yes-sir, mister. This cream puff was only driven on Sundays by a little old lady from Pasadena."

Before the test drive is the time to familiarize yourself with the brake pedal location, shift pattern, and steering response.

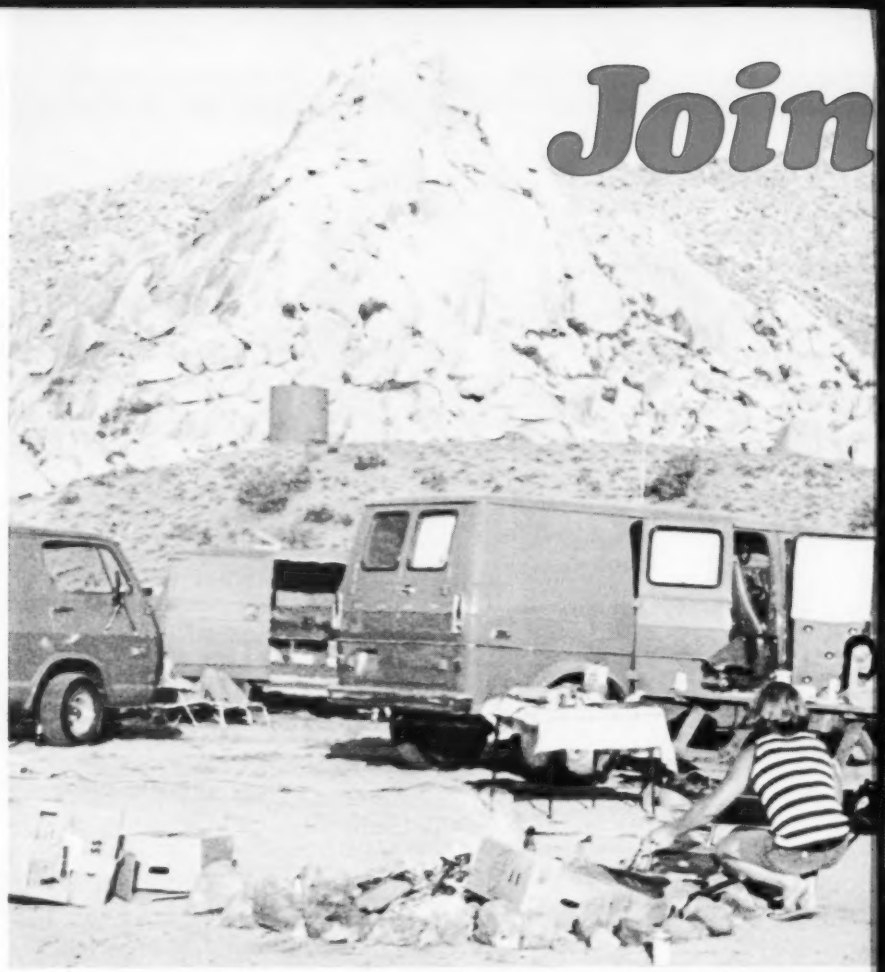
Ask questions if you don't know where things are, *before* you pull out onto the road.

Be sure to shop for the car that *you* want—not the one somebody wants to sell you.

Woman in uniform is
Sgt Cheryl Flannagan

A bold new trend in recreational trucking calling vanning is sweeping the continent

Join



Unless you've been driving around with a blindfold on, you probably know that vanning is the "in" thing these days. A complete new life style of motor vehicle ownership is taking North America like Grant took Richmond. Just look around. The wildest collection of beautifully painted, decorated, modified, tricked-out trucks in the history of autodom is making the scene like no other four-wheeler ever did.

Van clubs are springing up like wild flowers all across the United States and Canada. Van happenings are where the action is. Proud owners from teenagers to retired tigers are setting new standards for meticulous mods, maintenance, and careful driving. And Detroit's Big Three plus thousands of accessory manufacturers and retailers, eager to reap millions of dollars being spent on vans alone, are cheering them on.

Vans aren't exactly new. Merchants used them in the 1920s and '30s to deliver products like groceries, ice, and flowers. And telephone company folks have been beetling around forever in Ma Bell's version of Army fatigue green paint. If you're old enough, you'll also remember those ugly, brownish-green boxes with wheels used by Uncle Sam to pick up and deliver mail.

According to industry observers like *Motor Trend* magazine, it wasn't until the Volkswagen Microbus, the hippie movement, and an abundance of recreational time and facilities all fell together about 15 years ago that America really began discovering vans. Since then van ownership has somewhat ironically become a symbol of total freedom on one hand and a mark of middle class respectability on the other. And if you've got respect, you've got it made!

When DRIVER decided to survey the military scene, it was no surprise to find that thousands of soldiers, sailors, airmen, and marines are joining the van clan. Not only servicemen and women but also their entire families are vanning it up at happenings from beach parties to elaborately staged national truck-ins.

Just a few weeks ago at Beech Bend Park in Bowling Green, Kentucky, nearly 8,000 vans and four times as many people showed up for the Fourth Annual Truck-In sponsored by the National Street Van Association and the Suds City Van Club of Milwaukee. It was the largest and most vantastic event of its kind yet held in the good old U.S. of A. Large or small, most such "convantions" charge a $5 to $15 registration fee to cover promotion costs, prizes, music by a live band, and chunks of cash for charitable causes like crippled children's homes.

In addition to a variety of the friendliest, funniest games you can imagine for family members, including mechanic's creeper races, van-on-a-string, wet T-shirt beauty contests, and beer-drinking-with-a-straw duels between husband-wife teams and van clubs, van happenings usually feature a wild assortment of competitive events for the vans and their owners, too.

These range from driver-skill-testing back-up khanas to tire-destroying tugs-of-war between opposite pulling vans, from shotgun drives to muscle-stretching van pushes. And the highlight of every van-in is the show 'n shine com-

continued

(near right)
Visibility—or the lack of it—is a nasty word among most van operators when they're in traffic. To get around the problem, as teenage vanners Laura Heath, left, and Lisa Northey point out, buy good mirrors, install side and rear windows that the driver can see through, and keep all curtains parted while on the road.

(far right)
Because vans have an extra high CG, manufacturers make special improvements in their steering, suspension, and brakes. All are lost, however, when stilts like this one are installed to raise the van's tail, supposedly to improve performance.

the Van Clan!

(far left, near left)
Versatility and vans are synonomous as many disabled vets have discovered. John J. Scarberry, a Navy corpsman 100% disabled during WWII, and his handicapped wife, Ollie, of Hemet, Calif., use a specially equipped van to lead extremely active lives. Their 1971 Chevy Sportsman is fitted with remote driving controls and an electric tail lift designed and furnished by the Veterans Administration to make them both completely self-sufficient on the road.

Tires and wheels are dynamite to the trick looks of any truck, says AF Sgt Stan Elliott as he admires the Super Wide 60s on his '73 Chevyvan 10. However, the secret lies in choosing the right combination—wheel and rim sizes, tire diameter, tread width, construction, quality—for the gross weight of your van, fender clearance, and intended usage. A poor mix does bad things to a van's steering characteristics and suspension system, and too wide skins up front are a bear to drive.

Van-push contest? Chalk it up to practice, maybe, but this van—wide skins and all—is actually stuck in desert sand. Fellow vanners eat dust muscling out their buddy.

petition for trophies and dollars for the sharpest van interiors (homemade and factory custom), best paint jobs, best murals, best early and late model Chevies, Dodges, Fords, and Jimmies, farthest traveling vans, and the best-of-show van.

Now before rushing out to buy a van, you probably should know a few facts. First, vans are trucks and states license them accordingly. The Recreation Vehicle Industry Association classifies chopped and converted vans in the mini-motorhome category, but most purists consider their tricked-out vans a bastard breed unto themselves.

Except for Germany's ever popular VWs, nearly all vans in this country roll off the assembly lines of General Motors, Ford, and Chrysler. American Motors seems content with its legendary line of Jeeps. As with cars, you can buy vans in basic models or load 'em up with accessories.

Take, for example, a 1976 basic six-cylinder, stick shift, single-seat, Ford E-150 Econovan with a 124-inch wheelbase and a gross vehicle weight (GVW) of 6,250 pounds. It lists retail at nearly

continued

Each a breed unto themselves, van owners and motorcyclists typify today's free spirit and really come together in the great outdoors. This '76 Ford E-150 Econovan satisfies requirements both as a camper and a cycle hauler.

continued

JOIN THE VAN CLAN!

$4,000 f.o.b. Detroit. Add another $100 to $350 in freight costs, $50 to $200 for mandatory smog control equipment in some states, and $75 to $175 in dealer prep charges, and you're staring at a tab of $4,225 to $4,725 for a stripped, shorty cargo van.

Plush it up with high-back swivel buckets, special tires and wheels, heavy-duty suspension system, trailer hitch, side pipes, fancy paint job, port holes, sun roof vent, roof rack and ladder, spare tire mount, spoiler, fender flares, hood scoop, engine cover, sun visors, paneling, carpeting, snack tray, cabinets, toilet, lounge, floor safe, refrigerator, wet bar, air conditioning, AM/FM stereo, CB radio, burglar alarm, etc., and the vehicle's total suggested retail cost jumps another 25 to 100%. Your eyeballs finally cage after figuring in local sales taxes, license and insurance fees. It's not uncommon to wind up with a $6,000 to $12,000 price tag on your new toy.

Don't despair, however. You can whittle your bill down considerably if you've got a trade-in vehicle with which to bargain or if you're willing to wait several weeks for delivery of your particular choice. Also, as one Ford dealer told DRIVER, you should be able to negotiate a military member's discount up to $700 on a basic cargo van and even more as you add optional equipment.

Prospective purchasers interested in fuel savings should be aware that any van built since 1975 with a GVW under 6,000 pounds must burn unleaded gasoline, while those in excess of three tons can use regular.

Of no small concern to future buyers of new vans are rumbles out of Detroit that 1977 models will cost from 6 to 12% more than comparable '76s due to national inflation. You can beat the new wheels syndrome, however, by shopping around for a used van. But don't except a good number, even if it's an older model, to come cheaply. For a fat list of do's and don'ts, turn to page 4 and read this month's article, "Buying an Older Used Car."

If you're a rookie vanner, we suggest you talk over your desires and bread situation with several longtime van owners. You might also go to a library and bone up in such publications as *Hot Rod, Motor Trend,* and *Pickup & 4WD* magazines and *VANews*.

Your primary consideration should be what use you plan for your van. After all, not everyone is interested in van rallies or the show circuit. Will it be a camping vehicle? Will it be used to pull a trailer or boat, haul bikes, etc? Do you want to macho it up for off-road use? Or do you want to make it a combination utility/cargo/rec/transportation vehicle? In each instance, several safe driving requirements should enter into your decision.

First, American-made vans are available in both short- and long-wheelbase models and at least one comes with an extra long body. All are available with a variety of suspension systems, wheel and tire sizes, engine ratings, and a host of other safe operating features. Depending on whether you plan to tow a trailer, drive in the boonies, customize it inside and out, or just haul cargo, be prepared to pay for improvements necessary to preserve good handling characteristics.

Navy EN1 Don Traver, veteran vanner of Associated Southern Truckers of San Diego, has a few words of advice for anyone making the plunge.

"Before you start building up your van," he suggests, "go to a couple of van happenings and get some dynamite ideas. Talk to vanners. Ask 'em what they would do differently the next time they trick out their vans. Almost every vanner would do it differently the second time around. You can save a lot of the long green and labor this way.

"Build your truck so the weight is distributed evenly—not all on one side—or you'll have trouble driving.

"Build storage space below the raised platform if you put a bed in the rear. Otherwise, in a panic stop, all your loose tools and goodies go flying right into the cab!"

A chief engineer on Service Craft YO-203 out of Naval Station San Diego, Traver cautioned against ever installing a water bed in a van because the heavy weight and movement of the water make it uncontrollable in a panic stop. To emphasize the danger, he told of another vanner and his girlfriend who were smothered to death when their water mattress rolled over them in an accident and they couldn't lift it off.

Like any other vehicle, a van handles differently on the highway. In a bull session with several Navy, Marine Corps, and civilian members of San Diego Vans, both guys and gals, who were attending a Fourth of July weekend Vancentennial at California's Anza Borrego Desert State Park, DRIVER picked up some useful pointers for all van drivers that we'd like to pass on:

1. Make sure any customized seats that you install, especially swivel jobs, come equipped with seat belts and that the seats are bolted down securely.

2. Install good mirrors on both sides of the cab large enough to give clear views of traffic all around. Although clear glass is preferable, some vanners also install two-way mirror windows in the rear doors, providing both privacy and a direct view to the rear.

3. Tell friends who drive motorcycles and small cars not to drive on the right side of enclosed vans because the drivers probably can't see them.

4. Be wary of custom wheels. Some vans, especially those equipped with disc brakes, place a limit on the size and type of wheel that can be utilized. They may also place a limit on the overall diameter of tires that can be used, whether the custom rim features a stock offset or is reversed. Reversed wheels with their deep dish look are trick but they may also change a van's steering geometry, adversely affecting its han-

IS YOUR VAN FULLY INSURED FOR RIP-OFF?

Every day across the country, truckers are unhappily discovering that CB radios and tape decks ripped from their vans are not covered under their comprehensive auto insurance policies. Unless you notify your agent of any additions and mods to your vehicle, even a custom paint job, you probably aren't protected against their loss or damage by theft or any other method.

For example, Farmers Insurance Company offers a blanket endorsement for "nonstandard equipment and paint" additions up to $4,000 in replacement value for a premium of about $120 per six-month period. CB units (up to $200 in value) require still another endorsement, however, because of their high rate of rip-off (average life span of a new CB radio with tell-tale antenna is about eight days according to one agent).

Allstate's coverage is similar except it requires you to engrave serial numbers on your CB and stereo equipment (a good idea in any case). It also will insure tapes in your van up to $100, a rather unique feature.

Thousands of van clubs in the U.S. and Canada provide vantastic recreational opportunities for their members by staging weekend happenings. In these shots at De Anza Springs RV Park in the boonies near Jacumba, Calif., T-shirted truckers register for a Fourth of July Vancentennial.

dling characteristics and suspension system.

5. Don't mix radials with bias-ply or bias-belted tires. Use radials at all four corners or none at all. Bias-ply and bias-belted tires can be mixed but never on the same axle. When mixing series, always mount the smaller series numbered tires (wider effective tread width) on the rear wheels.

6. Raking a van more than a few inches is dangerous. Because a van already has a high center of gravity, raising its rear end or lowering the front end creates special driving problems in cornering, quick stops, and sudden accelerations. Steering geometry is changed, outer edges of the front tires get a constant scrubbing, and suspension system components take a beating.

Contrary to what some folks may think about people who like to jazz up their wheels, drink suds, and swap yarns about their showboats at outdoor rallies, van owners are definitely a different breed of cat when it comes to safe driving. Listen to what three police officers have to say.

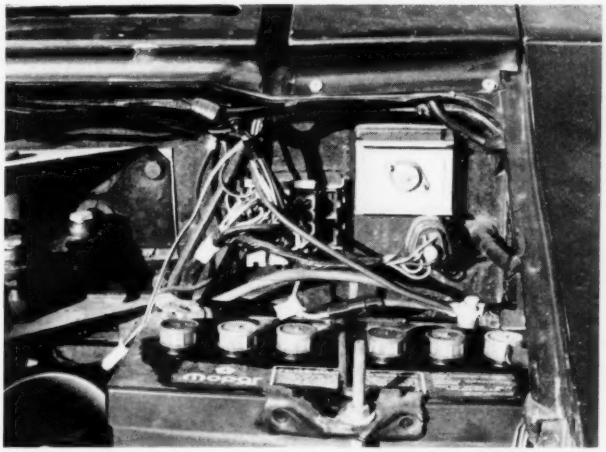
"Van drivers are safer than other motorists," relates Greg Stevens of the La Palma, Calif., Police Department, "maybe because they have a large investment to protect. They take more time with their lane changes and the vehicles themselves seem to hold the road better."

Motorcycle Officer Gary Gollehon, a van owner of the San Diego Police Department, said van jocks are aware their vehicles are not as maneuverable as a car and therefore are more cautious in traffic. "I don't recall ever investigating an accident involving a van, and looking into mishaps is one of my primary jobs," said Gary, who has been handing out traffic tickets for seven years.

Costa Mesa, Calif., Police Officer John Regan suggests that because drivers of enclosed vans have a limited view of the road, new vanners should practice using their mirrors in parking lots before hitting the streets. And all van operators should open their curtains whenever possible. He adds that van drivers as a general rule take fewer chances on the road and are more courteous to other motorists.

Officer Gollehon summed up the feelings of most vanners everywhere as he closed out the discussion. "When I drive, I'm almost paranoid somebody is going to hit me so I drive for everybody else. That's what you have to do if you value your van as well as your life."

Brand or company names and products mentioned or pictured do not represent endorsement by DRIVER or the U.S. Air Force.



Ripping off vans is BIG business today. To protect his investment, OS3 Mike Bates from the USS Elliott (DD-967) equipped his truck with Ames spring steel motion sensitivity detectors (left, about $8 apiece), one up front and one in the rear, and hooked them to a siren behind his '75 Dodge's locked grille. Photo on right shows circuitry for the detectors running to the alternator with a switch in between to charge a second 12-bolt battery in the rear of the van. The detectors are connected to the van's doors, seats, CB unit, and other goodies.

TIMELY TOPICS

FUEL ADDITIVES, CARBURETOR CLEANERS

The general procedure for using some fuel additives and carburetor cleaners is to run the engine at a fast idle and pour the additive directly into the carburetor—in some cases until the engine stalls. After allowing for a short engine soak period, the engine may be restarted and the process repeated until the entire can is consumed.

There is an important exception to this procedure—it cannot be used on cars equipped with catalytic converters. Most fuel additive manufacturers have made necessary changes in their recommended procedures, but if you have been using a product for several years you may not bother to read the directions, even though your car is a newer model. So remember that flooding the engine to stall with additives poured into the carburetor will most likely cause severe over-heating of the converter and some costly damage.

Most fuel additive manufacturers

say there is nothing in their products (petroleum-based solvents) which will harm the converter, provided they are applied according to their recommended procedures.

RED PLUGS IN THE SUNSET?

Champion Spark Plug Co. reminds you backyard mechanics that the red color of the spark plugs you remove from your engine may *not* be due to water in the combustion chamber. Instead, chances are the color is created by the new gasoline additive MMT.

When catalytic converters came out, gasoline manufacturers had to delete the lead anti-knock compounds they had been using. However, an anti-knock ingredient was still needed so engineers created the compound MMT, derived from manganese in-

stead of lead. This compound will cause your used plugs to be red in color.

So, if you use unleaded gasoline in your car and get red plugs, don't worry, it's only the MMT.

AMC ENGINE STUMBLING . . .

1975 and 1976 AMC (American Motors) automobile owners may complain of poor engine performance such as hesitation, stumble, or stalling. This may be due to fuel starvation caused by a plugged in-tank fuel filter.

■ Fuel starvation characteristics—hesitation and stumble—usually become more evident as fuel level nears empty and usually occur at cruising speed or during acceleration.

■ After stalling, the engine may require a 3- to 6-minute wait before restart.

AMC recommends replacing the in-tank filter with AMC Part Number 3163974. Fuel tank removal is required for this job, so you might consider getting your AMC dealer to do it.

VINTAGE TIN STILL "IN" . . .

We told you in the May '76 issue that automobile restoration was growing by leaps and bounds, and now we can prove it! In 1975, Champion Spark

Plug Co. made 37,697 spark plugs for Ford Model T cars. Looks like the TIN LIZZIE will be with us for some time to come!

WHAT KIND OF DRIVER ARE YOU ?

Zodiac Tells All!

Whether or not you believe in astrology, you can't help but wonder sometimes if—as a driver—you were born under an unlucky star (or a whole constellation).

The Automobile Association, a British auto club, recently asked the London Astrology Centre to determine what kind of drivers we are according to our birth dates. Hold on to your seat belts because, depending on your zodiacal sign, here's what the stars revealed:

AQUARIUS is the sign of the driver who likes the wind in his hair.

PISCES drivers appear to be dreamy, but in reality they are power maniacs hiding behind a meek exterior.

ARIES suggests overfondness for speed and dangerous showing-off on the road.

TAURUS car owners take extra good care of their vehicles, polishing and touching them up, but with little real love for driving them.

GEMINI drivers are just the opposite. They enjoy the going and are a bit disappointed when they arrive someplace and the trip is over.

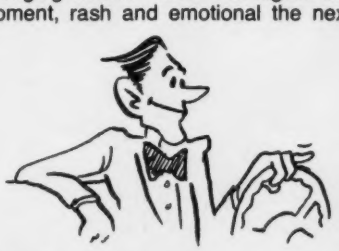
CANCER is the sign of the "family motorist," who needs the back seat full of children to feel at home.

LEOs look to their cars as status symbols and tend to buy a lot more horsepower than they really need.

VIRGO drivers see themselves as extremely careful, always watching the gauges and quick to blame any other driver on the road for any mistakes.

LIBRAs are the nonaggressive sort it is a joy to have in other cars—an insurance company's dream.

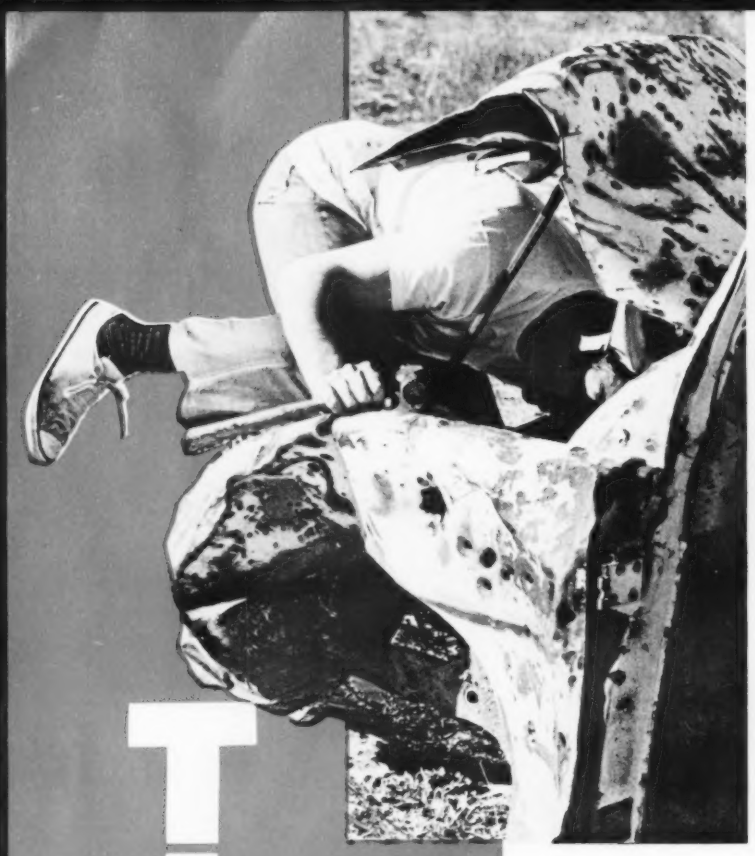
SCORPIO suggests quicksilver, changing moods—cool and logical one moment, rash and emotional the next.



SAGITTARIUS behind the wheel is the original "vroom-vroom," slap-dash and flashy.

CAPRICORNs never break the rules.

So there you have it. Now you know what a driver caught in rush-hour traffic means when he declares to the passenger beside him, "I wish I'd never been born!"



TIPS

FROM THE BACKYARD MECHANIC

At one time or another, all of us have discovered a "trick" that will help us as backyard mechanics. The problem is that sometimes we *need* a tip, rather than *have* a tip.

Therefore, this months' BYM is dedicated to those of you who have seen fit to write in and share these tips with us.

This is (hopefully) only the first of many "TIPS" articles. If you readers have any more little tricks-of-the-trade that you are willing to share, please send 'em on. Tips needn't be only for mechanics; how 'bout you cyclists and campers and fishermen, etc.? As long as the tips are good, solid info, and don't violate any safety procedures, we'll print 'em.

Address your tips to:

DRIVER Magazine
BYM Tips
AFISC / SEDD
Norton AFB, CA 92409

■ Do you use gasoline additives or carburetor cleaners that are poured directly into the carb? That's OK, but watch out if your car is equipped with a catalytic converter . . . some of these additives can really destroy a cat-con. Be sure to read all labels and instructions thoroughly before adding anything to your carburetor or gas tank.

■ If your shocks have been on for more than 20,000 miles, check 'em out. Leaks, the swaying of the car, and increased stopping distances can all be signs that the shocks have "gone away" and need replacement.

■ Squeaks and squeals from the power steering are usually caused by: a. Low fluid level, b. slipping power steering belt, and c. lack of grease in steering linkage.

■ Slow starter motor cranking can sometimes be cured by installing 6-volt battery cables instead of the 12-volt cables.

■ If your standard shift-on-the-column car shifts hard or misses shifts, check the linkage condition before tearing into the transmission. You may have hit something that bent the linkage near the transmission. Also, double check the rubber grommets or bushings. These

Don't be afraid to prowl the junkyards when you need body parts. Prices are usually less than half that of new parts. Same goes for items like power steering pumps and air conditioning compressors. Sure, you take a chance, but normally the parts will have a lot of life left in them, and reputable junk yards will give you your money back if the part turns out to be a bummer.

You can store those bits and pieces one of two ways. Muffin tin makes excellent temporary parts holder, while bin storage will make you rummage around to find that certain nut or bolt.

wear rapidly and are the prime cause of shift malfunctions.

■ If you go to start your car but get no interest from the starter, first check and see that the horn and lights work. This will generally eliminate the battery as the culprit. If the horn and lights work, suspect the neutral/park start switch. Try moving the shift lever all around, while in the park or neutral position, and keeping the ignition switch at the "start" position. If the car starts, the switch will have to be adjusted or replaced.

■ If you turn your directional signals on and they don't flash in one direction, don't run out and replace the flasher. First check the bulbs, both front and rear, on the side which won't flash. Chances are that one of the bulbs is burned out.

■ Don't automatically select the starter solenoid as the bad guy when your car doesn't start. First check the condition of the cables going to and from the solenoid, and pay close attention to condition of the actual connections.

continued

This picture shows a negative tip . . . if your work area looks like this, CLEAN UP YOUR ACT! Not only will this area make your wife kind of angry, it'll make you take three times as long to find parts. The best parts in the world aren't worth a darn if they're assembled with dirt in them. Also, even your 'Nam combat boots won't protect your toes when that piston or cam falls from an unboarded edge.

Then check to see if an object is shorting the terminals on top of the starter. Double check the neutral/park start switch (as shown above). Insure that the one or two small wires to the solenoid are securely connected. If the battery is OK, *now* replace the solenoid.

■ If your speedometer cable needs replacement or only just lubrication, don't try it without disconnecting the battery. Even if you don't wear rings and watches, messing around with the speedo connection under the dash can bring some of those little wires together causing sparks. The result of this is sometimes referred to by the electrics guys as a "smoke check."

■ Keep an old pair of heavy GI socks, with the toes cut off, in your trunk. If you have to mess with the engine, these "gloves" can prevent burns and grease stains on your favorite shirt.

■ Dirty spark plugs can sometimes be cleaned (if not too worn) satisfactorily in household ammonia. It's cheaper and less abrasive than sandblasting, but be sure to work in a well-ventilated area.

■ If you have to replace a broken leaf spring on the rear of your car, replace in pairs only. Replacing just one can cause the car to "crab" with resultant tire and suspension wear.

■ Avoid using high-pressure hoses or nozzles when washing your car . . . high water pressure can force dirt and grime right into the paint.

■ Don't keep old brake fluid around. Buy only as much as you need and discard the rest. Unopened cans are OK though. The reasoning behind this goes like so . . . brake fluid is hygroscopic, that is, it absorbs water from the air. Water, as you recall, has a boiling point of only 212° F. while brake fluid boils at a much higher temperature. Brake components get very hot during use, and any water in the brake system will boil almost instantly and turn into a compressible gas (steam) with the result being you'll lose your brakes. You should buy brake fluid in sealed containers only. It should meet SAE J1703 standard or J1702 in the Arctic. You *may* mix types of brake fluid, but you really shouldn't because the resultant mix may have a lower boiling point than either of the two individual types.

■ Before beginning work on your electrical system, be sure to remove the cable from the *negative* or ground side of the battery. Without this ground the battery is dead, as far as the system is concerned, and if you hit the hot (positive) pole by accident, you won't "smoke-check" anything.

■ Plastic-coated wire dish drainers can be used to hold parts over a tank as you wash them with safety solvent.

■ A rubber or silicone "boot" from an old spark plug cable makes an excellent plug "starter," especially when you're trying to install plugs in a hot engine.

■ Plastic or metal 35mm film cans make excellent small-parts containers for jets, ignition springs, etc., and we *know* you never let your loved ones throw out those old coffee cans! Along the same vein, those aluminum muffin tins and old TV dinner trays make great parts bins.

■ Get some fluorescent paint and put it on the 4-way wrench lug that fits your car . . . saves time fumbling around figuring out which lug fits which socket. Also, paint the timing marks and pointer near the crank shaft pulley . . . your timing light will show them even in daylight.

■ An old rear-view mirror makes a great mechanic's mirror. Use it to look behind and under parts you can't see normally.

■ Wrap and glue a layer of crocus (abrasive) cloth around the top of your screwdriver shank . . . you can get a grip on it and twirl the 'driver with your thumb and forefinger.

Trying to bleed brakes can be frustrating unless you invest 40 cents in this little flexible hose. Hook up big end over brake bleed valve and put the other end into a jar of brake fluid. While your buddy pumps the brakes, you just open the valve and watch the fluid coming into the transparent tube. When the fluid no longer has any bubbles in it, merely close off the valve. No on-again/off-again valve operation.

■ Want to remove a decal without damaging your paint? Set a hot plate and teakettle near the decal (but not close to the fuel tank!) and steam the little devil right off.

■ Keep all your small wrenches, like ignition wrenches, on a beaded chain or diaper pin. They'll stay together and you can find 'em when you want 'em.

■ If you work on transmissions occasionally, cut a two-inch hole in the top of your workbench with a hole saw. The transmission main shaft goes in the hole and the transmission will rest on the bellhousing or transmission face in a vertical position and be easy to work on.

■ Have the universal joints from your socket set gone out to lunch and wiggle about freely? Slip a coil spring over the joint. Really helps to keep the joint straight.

■ A head from a broken rubber mallet makes an excellent piston installer, as well as a good interface between soft metal parts that occasionally have to be hammered into place.

This is what happens when you don't break-in an engine properly. Piston came from an engine with less than 150 miles on it. When the piston went out to lunch, driver was doing 80 mph. Pay attention to proper break-in procedures!

This is the correct way to store your parts. Run into the kitchen and rip off a box of Baggies, big and small, before you get those new parts dirty. Trash bags work well for blocks, "food storage" sized bags for most other parts.

■ When you drill metal, lubrication is a must. Place a common rubber hose washer around the hole and add the lube. The washer will keep most of the lube doing its job.

■ If you're trying to install a nut in close or blind areas, try this. Put the nut in the proper box-end wrench and then slap a piece of masking tape across the back. The tape keeps the nut in the wrench until you can start it on the bolt or stud or whatever.

■ Glue a few small magnets to an old margarine or butter dish. You can use the dish for holding bits and pieces, and the dish won't fall off the car even if you jostle it.

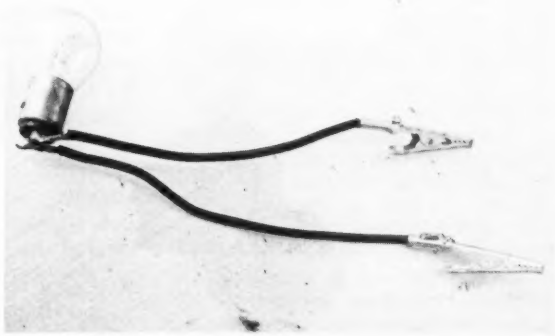
■ Use golf tees for plugging vacuum and brake lines on a temporary basis.

■ If you've tried using your bench vise to hold small objects while soldering them, you know the jaws bleed off most of the heat. Make a set of jaw caps from a piece of asbestos house siding or asbestos cloth . . . no more heat leak.

■ If you're looking for something to mix that batch of plastic body filler on, why not try a piece of plate glass or old mirror? The filler comes off easily and the glass cleans right up. Watch for sharp edges though, and don't use a piece of broken glass. Get a

continued

(right)
Need a timing light for your motorcycle or VW? Two alligator clips, two feet of wire, and a 12-volt bulb cost about 80 cents. Also good for simple electrical troubleshooting.



(bottom right)
Handy tools dept . . . electrical pliers crimp connections, strip wire, and cut small screws and bolts. C-clip pliers (below) are the neatest things since holes in doughnuts. This universal model costs about $4 and has several sets of interchangeable tips so you can remove all those stubborn inside and outside C-clips. Very handy when rebuilding master cylinders, power steering pumps, transmissions, etc.

This is the pan from the engine with the broken piston. Piston pieces fell down and scored the cylinder walls, seized the crankshaft, and even managed to find their way into the oil pump, destroying it as well. Can your pocketbook take this kind of treatment? Seized engines also present a *small* safety problem . . . especially at 80 mph.

continued

TIPS FROM THE BACKYARD MECHANIC

square piece from the hardware store and do the edges with a layer of cloth and racer's tape.

■ An old piece of radiator hose makes a good sanding block for getting at those tricky curves and corners while you're prepping your wheels for a new coat of paint.

■ The backyard mechanic's greatest aid is possibly duct tape. Some call it "200 mile-an-hour" tape, others call it racer's tape. Whatever you call it, it's that silver tape about two inches wide and it'll do most anything. It'll repair upholstery temporarily, hold your motorcycle's bits and pieces on, patch a hole in an oil pan, and we *know* for a *fact* that it'll fix a busted radiator hose long enough to get home.

■ If you've got some paint touch-up to do with a spray can, get a foot square piece of cardboard and cut a two-inch hole in the middle. Spray the paint at the area to be touched up, holding the cardboard mid-way between the paint can and the body. The cardboard will "vignette" the spray and make it blend smoothly with the old paint, rather than giving you one bright spot of new paint.

■ If your fingers still feel sticky after a fiberglassing job even though you cleaned them with acetone, try dusting your hands with cornstarch. Bye bye sticky feeling!

■ Our last tip comes to us from Capt Calvin Naegelin of Scott AFB, IL. He writes:

"In your April '76 issue (page 24), you mention that getting at the Ford distributor hold-down nut (especially with an air-conditioner) is a problem. I certainly agree. I have a 1970 Ford with a 390 cubic inch engine and have solved the problem in my base hobby shop for somewhat less than $3, in comparison to $10 plus for a genuine Ford distributor hold-down nut wrench.

"The solution is to make your own. It's so easy any 'backyard mechanic' should be able to do it. First, purchase a half-inch box-end wrench. Saw off the other side. Then fashion a loop in a piece of stiff wire and obtain, by trial and error, the proper angle required to place the loop over the hold-down nut and yet still be able to turn it freely down through the maze of wires and air conditioner supports. Then, place the sawed-off end of the wrench in a vice and heat (fairly close to the business end) the wrench to a cherry, bendable red. Bend the wrench end to conform to the bend in the wire. After this, weld a six-inch extension to the sawed-off part of the wrench and the job is complete. Most base hobby shops have welders and people who know how to use them, hence the entire job can be done quite inexpensively there.

"Sound simple? Try it! I've used my homespun wrench now for almost six years and have had no problems. Counting the number of times friends have borrowed it, it has paid for itself numerous times. Similar outfits could be made for Chevys, Plymouths, American Motors, etc."

LETTERS TO THE EDITOR

BACKFIRE

AUTOMOBILE RESTORATION

I really enjoyed reading the article by SMSgt Bates about automobile restoration in your May issue but I feel a couple of points need to be clarified.

The first has to do with the front suspension. A VW unit is recommended in a '35 Plymouth also equipped with a "Hemi." This would seem to be more than a VW unit would be capable of supporting in terms of weight. For example, Chevies of the same year ran from 2520 pounds to just over 3000 pounds for the three-window coupe and master deluxe front-door. The Plymouth would undoubtedly be very close to these weights. That doesn't include the added weight of the big Mopar engine (probably an extra 100 to 200 pounds.) A 426 weighs about 700 and is one of the heaviest V8s made. A VW sedan only weighs about 1800 to 1900 pounds. Most of the weight is over the rear wheels. For a glass "T" roadster with a small block Chevy or Ford maybe, but nothing heavier.

One other thing. I think you should point out that top chopping is nothing a novice should try.

Good luck with the '37. Street is neat!

ADJ3 George Fruhling
VA 204 W/C 050
NAS Memphis
Millington, TN 38054

Thanks for clarifying those points for us, George. By the way, our '35 is almost done.

HONDA NOT HARLEY

I just read your article in the May issue, "Royal Rip Off," and noticed an error in the caption of the bottom right picture on page 9. If you take a quick glance at the picture it is describing, I am sure you will find the motorcycle to belong to an unlucky Honda owner instead of a Harley owner.

Keep up the good articles on motorcycle safety. I read every one and enjoy them immensely.

ADJ1 Roger Stermer
AIMD Quality Assurance
NAS Moffett Field, CA 94035

You're so right! 'Twas one of those proofreading oversights that make writers prematurely gray.

CYCLISTS AND AUTO DRIVERS

In the May issue of DRIVER, I was amazed to see so much space devoted to motorcycling. Motorcycles have been a part of my life, off and on, since 1948. I have found that the sport is for me, a recurring disease. Often, a motorcycle has been my sole means of transportation.

It has been my experience that the most dangerous period of ownership occurs six months after initial purchase. During the first six months, the instinct for self preservation tends to curb exuberance. Then the feeling that "I've mastered this beast" tends to take over. I wholeheartedly agree with the letter by S. Hutchins that one must "think motorcycle."

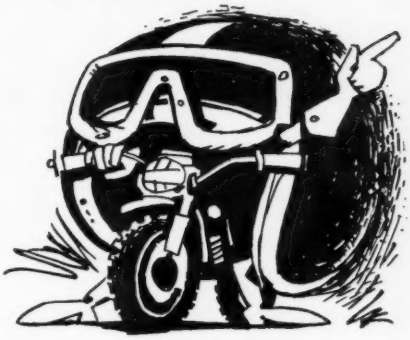
The key word is THINK, not only motorcycle, but motorist as well. At the risk of inciting the wrath of fellow motorists (I also drive a car), I must say that a good many drivers adopt a "head down and locked, eyeballs caged" attitude. Most motorists do not consider the motorcyclists right to roadspace, much less his inherent vulnerability. Most are aware only of what may be directly in front of them.

Col. Richardson, in his letter, seems to advocate more regulation or a complete ban of street machines. Driving safety is a matter of will and awareness, not regulation. My reaction to a ban of street machines is unprintable. We must never exclude the human element from driving safety and rely instead on regulation. I am not against safety, no one is. I AM against regulatory legislation stemming from reaction, from hysteria by unknowing politicians that seek only to perpetuate themselves in office. I also do not agree that Federal or State agency edicts should have the power of law. The citizenry has little or no control over their activities. I must agree with the 1928 statement of Justice Brandeis: "The greatest dangers to liberty lurk in insidious encroachment by men of zeal, well-meaning but without understanding."

A.F. Simons
Tuslog Det. 8, Box G
APO New York, N.Y. 09294

You are in agreement with the experts on both your major points: most motorcycle accidents occur during the last part of the "first six months or riding," and motorists often get involved in collisions with cyclists because they "don't see them," even when the motorcycle is in plain sight.

SAFETY HELMETS



When I read the letter from one of your readers opposing motorcycle helmet laws, I had to write about an accident which makes me feel stronger about the safety value of a helmet.

While watching the news, they had a short report about a motorcycle accident that I feel your readers should hear. A motorcycle rider was traveling on a local divided highway when he was involved in an accident with a large truck. Witnesses stated that the truck's rear wheel ran over his head and he got up with only minor injuries. The helmet was shattered but the point is it saved his life.

I cannot believe the logic of statements like "When I ride a motorcycle, my objective is to enjoy it without getting involved in an accident. If I accomplish this, I do not need a helmet." To me, that is like playing Russian roulette with your bike. The first five rides may be no problem, but that one time you don't succeed in your accomplishment might mean death or crippling injury. No one plans an accident, but use of the right safety equipment—approved helmet, clothing—and good maintenance of your machine can help you come through in better shape if you do have an accident.

After riding motorcycles for five years, I find safety equipment no obstruction to enjoyment. Helmet laws are made for the protection of the rider who needs all he can get. I feel that anyone who would stay off a motorcycle if he had to wear a helmet shouldn't be planning to ride on one in the first place.

A1C David J. Malmsten, USAF
4th AMS
Seymour Johnson AFB, NC 27531

continued

SWIM GOGGLES AND OXYGEN

Where is your warning in the "Swim Goggles" caption on page 28 of the June '76 DRIVER that goggles are for surface swimming only, that wearing goggles and diving can result in eye damage? (Diving means exploring the bottom of a swimming pool as well as doing neat things off a diving board.)

Now read the last sentence in the "In a Drowning Situation?" caption. Your seemingly innocent mistake of writing "oxygen" instead of "air" causes me to wonder whether or not casual but dangerous reinforcements have occurred in unwitting minds. Oxygen—100% oxygen—should never be used in connection with water sports, especially swimming and skin and SCUBA diving. The hazards of doing so are very real and very serious.

SMSgt John J. Leslie
HQ, ADC/XPMM
Ent AFB, CO 80912

True—swim goggles are for surface swimming only, not diving. We did not intend to give any other impression. Correct again—100% oxygen is not used for water sports, nor did we say it is. While "air" would have been a better word choice than "oxygen," we felt both the photo and caption text left no doubt about the point we were making.

SHE WEARS A HELMET

In a letter to you in the May '76 issue of DRIVER a man stated that his objective was to enjoy his motorcycle without getting involved in an accident. (He was against helmet laws.) I feel that is everyone's objective. However, no matter how good you are, or where you ride—street or dirt—accidents do happen. If they were intentional they would not be called accidents. It takes only one fall to injure or kill yourself.

As an Air Force nurse and motorcycle rider, I favor helmets *and* protective clothing. I also feel laws are necessary to protect those who cannot see the logic in protecting themselves.

Thank you for a good magazine.

Capt Susan Tomlinson
USAF Hospital
Columbus AFB, MS 39701

SKI VEST ENDORSEMENT

Enjoyed your good article on boating in the July '76 DRIVER. From personal experience, I fully endorse your picture caption on use of a ski vest on page 30.

I was working a slalom exercise last summer in Alabama and "caught an edge." The result was a dislocated shoulder on water impact. The ski belt brought me to the surface—barely.

In retrospect, if I had used an impact vest, odds are I would have never been injured. I certainly would have surfaced faster.

In future articles, you might want to mention a ladder for skiers. In my case, climbing over the motor with one good arm convinced me to buy one.

Col C. H. Greenley, USAF
390th SMW
Davis-Monthan AFB, AZ 85707

Although in the past we have printed pictures of water skiers wearing belts, we have come to realize that the belt just isn't enough protection. Thanks for the tip about ladders for skiers.

DO WHAT YOU WANT — BEAR THE CONSEQUENCES

Most people in the U.S. do believe in the efficacy of seat belts and helmets. Reflecting that belief, the various legislatures have passed an assortment of laws requiring installation or use of the devices. Two factors cause us problems, however. First, although citizen Jones believes seat belts make him safer, he doesn't use them (forgets, too much bother, uncomfortable, oversight, etc.). Second, citizen Smith fights any infringement of his freedom of choice, claiming that only he is the victim if he is wrong. Both types are able to lessen their dollar risk by spreading it out to me, by way of insurance.

Everyone, no matter what his feelings towards the devices, could be better served if the present laws assigning financial responsibility were to be supplanted by other laws implementing a single concept: If the use of the device would have precluded or mitigated an injury, the failure to use seat belts in an auto, or helmet on a cycle, is prima facie evidence of neglect leading directly to the injury sustained.

Here is how it would work. I run a stop sign and hit your car; it was without doubt my fault. Your wife, the passenger, flies forward and smashes her face on the windshield. She was not wearing the installed seat belt. You the driver, did have your belt on and suffered a broken leg. The accident was my fault so I, or my insurance, will pay for the car and your leg. Your wife's face is another story. The belt would have prevented or lessened her injury. She was neglectful in not wearing it. Her neglect lead directly to her injury. I would not be liable.

Of course, the example used is simplistic. The actual laws needed to implement the basic concept would be, like most laws, fairly complex. But the principal is simple: You do what you want; you bear your consequences. My insurance rates would not be raised because you injure yourself.

Maj David Campbell
31 CSGp/DW
Homestead AFB, FL 33030

CYCLISTS HAVE RIGHTS, TOO

I agree in part with Col Richardson's statement (Backfire, May '76) that it makes little difference who's at fault after an auto and motorcycle accident has happened. However, there are many of us out here who have been riding 10 to 15 or more years without any disabling injuries or even an accident.

But my thoughts go further. If people would stop stereotyping the motorcyclist, using scare techniques, and expending their energy fighting the rights of motorcyclists to ride on the highway, they could find constructive ways of improving the situation. I, too, come to a stop. The way to do this is to educate not only the cyclist but also the automobile driver. If two-wheeled motor vehicles are to co-exist safely with their four-wheeled counterparts then the automobile driver must develop a greater awareness of motorcyclists in the traffic stream.

I appreciate Col Richardson's concern; however, I think he should take a look at all the safety programs we have for motorcyclists. In doing this, I think he will realize that DRIVER is only trying to contribute to those safety packages, and I must say very effectively. If Col Richardson is really concerned, I invite him to join our safety education drive. In so doing he can help educate me and my fellow cyclist but even more important our counterparts (the four-wheel vehicle operator).

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1976's SAFEST TRUCKER

Harry Thomas, the American Trucking Association's 1976 Driver of the Year, has driven 2½ million miles in the past 25 years without a single accident or traffic ticket. He has a damage-free cargo record as well.

Thomas has some tips for the average driver:

- Allow sufficient separation between the huge highway units and your smaller passenger car.
- Try to stay out of bunched-up traffic masses on the highway. It's hard to do because the 55 mph speed limit means both cars and trucks are running at the same speed. Slow down if that's the only way to get some space around you.
- Don't overload the vehicle. On every trip I see overloaded cars passing me at high speed in such a state of borderline control that the entire geometry of the vehicle's chassis, suspension and steering are at the critical point. It's just an accident going someplace to happen.
- Maintain your vehicle. It's usually the little things that give trouble on the road. A pre-check goes a long way toward securing your safety. Be particular about wiper blades, lights, and the emergency flasher system.
- If you drive at night, allow plenty of rest stops. Night driving can be 100% more tiring than daytime driving. Keep the air circulating in the car, especially if you're a smoker. Night drivers who smoke generally have a much higher fatigue factor.
- Wear your seat belts. I wear them constantly in spite of my driving record.

"Driving is a full-time occupation, a professional act, and everyone who drives has the personal responsibility to do it as well as the human system can devise."

tuneup

"I could'a swore power boats were supposed to yield the right-of-way to sailboats."

"This is one old car that won't pollute any more; I welded the exhaust valves shut."

"And this is our godfather model; it comes with an extra hood. . . ."

"He's not a very good mechanic—but he's great at helping us change tires."